

*U.S. DEPARTMENT OF COMMERCE*  
*Office of Inspector General*

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*NATIONAL OCEANIC AND  
ATMOSPHERIC ADMINISTRATION*

*Process for Reducing  
The Critical Hydrographic Survey Backlog  
Lacks Key Management Controls*

*Audit Report No. STD-15120-3-0001/July 2003*

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RELEASE**

*Office of Audits, Science & Technology Audits Division*



**UNITED STATES DEPARTMENT OF COMMERCE**  
**Office of Inspector General**  
Washington, D.C. 20230

July 28, 2003

**MEMORANDUM FOR:** Vice Admiral Conrad C. Lautenbacher, Jr., USN (Ret.)  
Under Secretary for Oceans and Atmosphere

**THROUGH:** Jamison S. Hawkins  
Acting Assistant Administrator for Ocean Services  
and Coastal Zone Management

**FROM:** Michael Sears *Michael Sears*  
Assistant Inspector General for Auditing

**SUBJECT:** *Process for Reducing the Critical Hydrographic Survey  
Backlog Lacks Key Management Controls*  
Audit Report No. STD-15120-3-0001

Attached is our final report on NOAA's management of the critical hydrographic survey backlog. We believe that NOAA should strengthen a number of key management controls over its efforts to eliminate this backlog. For example, NOAA needs to establish controls to better manage, stabilize, and document the critical survey backlog; ensure that survey work is consistent with its justification to Congress; track the full costs of the hydrographic survey program; enforce task order due dates for survey contractors' final deliverables; and implement a detailed and documented work plan for eliminating the critical backlog. The executive summary begins on page i, and recommendations appear on pages 5, 8, 11, 14, and 16.

As required by DAO 213-5, please provide us an audit action plan addressing the recommendations in the attached report within 60 days of this memorandum. The format for the plan can be found in Exhibit 7 of the DAO. Should you need to discuss the contents of this report, please call me at 202-482-1934 or Ronald Lieberman, Director, Science and Technology Audits Division, on 301-713-2070.

We appreciate the cooperation and courtesies your staff extended to us during our review.

Attachment

cc: Helen Hurcombe  
Acting NOAA Chief Financial Officer/Chief Administrative Officer

Mack A. Cato  
Director, Audit, Internal Control, and Information Management Office

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## EXECUTIVE SUMMARY

NOAA has a statutory mandate to provide nautical charts and related information for the safe navigation of marine commerce and basic hydrographic data for engineering and scientific purposes, as well as for other commercial and industrial needs. To fulfill this mandate, NOAA conducts hydrographic surveys of the U.S. Exclusive Economic Zone—an area of more than 3 million square nautical miles that extends 200 nautical miles offshore from the nation’s coastline. These surveys collect data via state-of-the-art technologies, in order to create nautical charts. Hydrographic survey data supports a variety of maritime functions including port and harbor maintenance (dredging), coastal engineering (beach erosion and replenishment studies), coastal zone management, and offshore resource development. Reliable nautical charts are fundamental to safe and efficient marine navigation.

In 1994, NOAA identified approximately 43,000 square nautical miles, primarily coastal shipping lanes and approaches to major U.S. ports, as critical areas<sup>1</sup> in need of hydrographic surveys (i.e., “the critical survey backlog”). NOAA has committed to completing these surveys by FY 2017.

In FY 1998, Congress created a separate budget line item entitled “Address Survey Backlog” and appropriated additional funds to NOAA to complete this work. In addition, Congress has specified that NOAA use private sector contractors to augment the data acquisition activities of its hydrographic vessels, and appropriated a total of \$89.7 million to NOAA for FYs 1998 through 2002 to fund such contracting.

We conducted an audit of NOAA’s critical survey backlog program to (1) identify and validate NOAA’s progress in reducing the critical survey backlog; (2) identify and assess NOAA’s goals and plans for eventually eliminating the backlog; and (3) evaluate the effectiveness of NOAA’s management controls over reducing the backlog. Unfortunately, due to weaknesses in these controls, as discussed below, we were unable to accurately assess NOAA’s progress in reducing the critical survey backlog.

Our findings and recommendations are summarized as follows:

**NOAA should establish effective controls to better manage, stabilize, and document the critical survey backlog.** NOAA cannot support with original nautical charts the specific areas that comprised the critical backlog baseline established in 1994, has since modified the baseline, and—despite an effort in 2000 to stabilize it—continues to make undocumented changes. NOAA officials acknowledged that they do not have written policies and procedures for ensuring accountability over the composition of the critical survey backlog. However, without effective controls, NOAA cannot provide assurance that it is making appropriate progress toward reducing the backlog. (see page 4).

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<sup>1</sup> Areas deemed critical are waterways that have high volumes of commercial traffic (e.g., cargo, fishing, and cruise vessels and ferries), extensive petroleum or hazardous material transport, and transiting vessels with low under-keel clearance over the seafloor—or that prompt compelling requests for surveys from users.

**NOAA should ensure that survey work is consistent with its justification to Congress.**

During FYs 2001 and 2002, NOAA obligated \$6.5 million of its “Address Survey Backlog” funds for surveys of “non-backlog” locations. NOAA thus runs the risk of ultimately requiring larger appropriations under this line item to achieve the stated goals (see page 7).

**NOAA needs to track the full costs of its hydrographic surveys program.** The Hydrographic Surveys Division does not track and periodically report to NOAA managers the full cost of its hydrographic surveys program, including its critical and noncritical<sup>2</sup> components, as provided by federal internal control and cost accounting standards and endorsed by NOAA.<sup>3</sup> According to division officials, NOAA lacks policies and procedures that support these federal mandates. Without knowing the full costs of the Hydrographic Surveys Division’s survey activities, NOAA cannot provide reasonable assurance that it is making optimal use of public resources appropriated for conducting surveys or that appropriations are sufficient for accomplishing their intended purpose (see page 10).

**NOAA should enforce due dates for delivery of contractors’ completed surveys.** NOAA needs to strengthen its internal controls over contractor performance by enforcing due dates for delivery of completed surveys and other work products (“deliverables”), and establishing interim milestones against which to measure contractors’ progress. Despite contract requirements for timeliness, survey contractors have often been submitting their final deliverables late. A NOAA official explained that in the interest of obtaining the highest quality data, deliverables are often returned to contractors, sometimes several times, for improvement. While we recognize the importance of high quality data, NOAA must, nevertheless, better manage task order due dates in order to assure stakeholders that it is doing all it can to expedite the reduction of the critical backlog (see page 13).

**NOAA should implement a detailed work plan for eliminating the critical backlog.** NOAA has not implemented a detailed and documented work plan that specifies cost and schedule goals for eliminating the critical survey backlog. NOAA officials told us that cost estimates would require multiple caveats that allow for variables beyond their control. However, federal legislation and guidance stress the need to integrate program planning and goals in agency programs. Without a detailed, documented plan, NOAA risks prolonging the process of eliminating the backlog (see page 15).

At the conclusion of our review, we discussed our findings with NOAA officials, who expressed general agreement with the intent of our recommendations. On pages 5, 8, 11, 14, and 16 we offer recommendations to the Under Secretary for Oceans and Atmosphere to address the concerns raised in this report.

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<sup>2</sup> Use of the term “noncritical” in this report describes those square nautical miles classified by NOAA in its *National Survey Plan* as “navigationally significant” but not part of the “critical survey backlog.”

<sup>3</sup> *NOAA Program Review*, May 2002.

### Funds to be put to better use

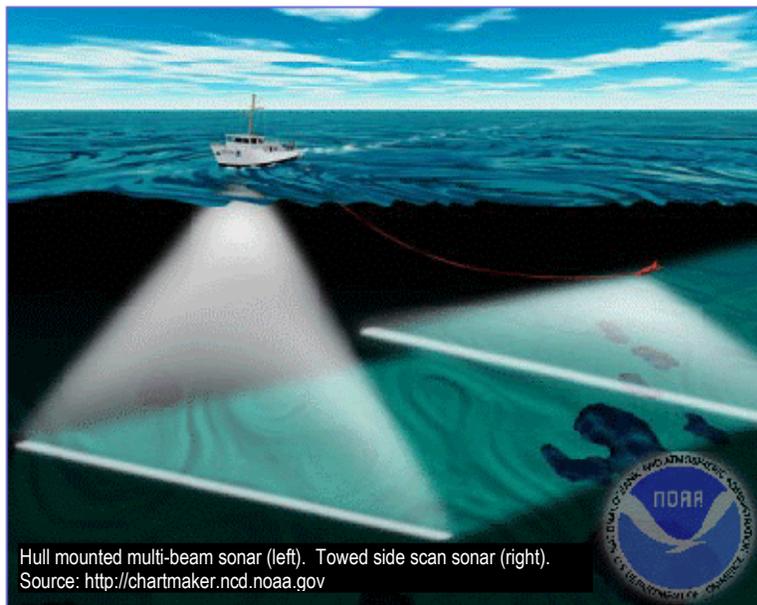
Implementation of the report's recommendation to develop written policies and procedures that require NOAA to use "Address Survey Backlog" funds for the critical survey backlog will result in \$6.5 million of funds to be put to better use over a two year period. These policies and procedures will then enable NOAA to use such funds in a manner that is consistent with its justification to Congress in seeking funds for this program (see page 8).

In response to the draft report, NOAA stated that management controls should be strengthened to eliminate the critical survey backlog. NOAA concurred with six and was nonresponsive to one of the report's eight recommendations. NOAA did not concur with our recommendation to implement a detailed and documented work plan that includes cost and schedule goals for expediting the reduction of the critical survey backlog. NOAA believes that such a plan is inconsistent with the changes in assumptions and variables associated with its program and said that it will continue to develop *general* work plans. However, we continue to believe that NOAA should implement a detailed and documented work plan that includes cost and schedule goals and thereby expedites reduction of the critical survey backlog. In addition, of the six recommendations with which NOAA concurred, its replies for three were not fully responsive. We have requested that NOAA include in its audit action plan the steps it will take to fully implement these recommendations. NOAA agreed in principle with our funds to be put to better use, but differed in the amount of such funds. Also, NOAA suggested some changes to the body of the report. We have taken these comments into consideration and have made changes as appropriate.

NOAA's response to the findings and our related comments are highlighted in the body of the report. Appendix E contains NOAA's complete reply to the findings.

## INTRODUCTION

NOAA has a statutory mandate to provide nautical charts and related information for the safe navigation of marine commerce and basic hydrographic data for engineering and scientific purposes, as well as for commercial and industrial needs. To fulfill this mandate, NOAA conducts hydrographic surveys of the U.S. Exclusive Economic Zone—an area of more than 3 million square nautical miles that extends 200 nautical miles offshore from the nation’s coastline.



These surveys collect data via state-of-the-art technologies (see diagram) in order to create nautical charts. Hydrographic survey data supports a variety of maritime functions including port and harbor maintenance (dredging), coastal engineering (beach erosion and replenishment studies), coastal zone management, and offshore resource development. Reliable nautical charts are fundamental to safe and efficient marine navigation.<sup>4</sup>

In 1994, NOAA identified approximately 43,000 square nautical miles, primarily coastal shipping lanes and approaches to major U.S. ports, as critical areas<sup>5</sup> in need of hydrographic surveys (i.e., “the critical survey backlog”). NOAA has committed to completing these surveys and thereby eliminating the backlog by FY 2017.

In 2000, NOAA issued its *National Survey Plan* to address current trends in maritime navigation. The plan identifies more than 500,000 square nautical miles of the Exclusive Economic Zone as “navigationally significant” and prioritizes their need for hydrographic surveys. The highest priority was given to the critical survey backlog.

In FY 1998, Congress created a separate budget line item entitled “Address Survey Backlog” and appropriated additional funds to NOAA to complete this work. In addition, Congress has

<sup>4</sup> The Office of Inspector General recently issued an audit report--*Improvements Needed in the Reporting of Performance Measures Related to Promoting Safe Navigation and Sustaining Healthy Coasts* (FSD-14998-3-0001)--that addressed issues and made recommendations regarding NOAA’s critical survey backlog. That audit was limited to a review of NOAA’s performance measures related to its performance goals of (1) promoting safe navigation and (2) sustaining healthy coasts.

<sup>5</sup> Areas deemed critical are waterways that have high volumes of commercial traffic (e.g., cargo, fishing, and cruise vessels and ferries), extensive petroleum or hazardous material transport, and transiting vessels with low under-keel clearance over the seafloor—or that prompt compelling requests for surveys from users.

specified that NOAA use private sector contractors to augment the data acquisition activities of its hydrographic vessels, and appropriated a total of \$89.7 million to NOAA for FYs 1998 through 2002 for such contracting.

NOAA's Hydrographic Surveys Division, a component of the National Ocean Service's Office of Coast Survey, manages hydrographic surveys. The Hydrographic Surveys Division's efforts are supported by partnering with NOAA's Marine and Aviation Operations, which provides field personnel and vessel support for in-house surveys, and with private contractors.

## OBJECTIVES, SCOPE, AND METHODOLOGY

The objectives of this audit were to (1) identify and validate NOAA's progress in reducing the critical survey backlog; (2) identify and assess NOAA's goals and plans for eventually eliminating the backlog; and (3) evaluate the effectiveness of NOAA's management controls over reducing the backlog. Unfortunately, due to weaknesses in these controls, we were unable to accurately assess NOAA's progress in reducing the critical survey backlog. These weaknesses are discussed throughout the body of this report. We did not assess the reliability of computer-generated data because such data was not relevant to our review.

We used the following methodology to conduct our audit:

- **Review of federal guidance and legislation.** We examined relevant federal laws, regulations, and guidelines, including the Government Performance and Results Act of 1993; Hydrographic Services Improvement Act of 1998; 33 USC 883a (Surveys and other activities); the Brooks Act: Federal Government Selection of Architects and Engineers; the Federal Acquisition Regulation; Office of Management and Budget Circular A-123 (Revised), *Management Accountability and Control*; and the General Accounting Office's (GAO's) *Standards for Internal Control in the Federal Government*.
- **Examination of relevant documents.** We studied a variety of materials, including congressional committee reports and testimony; NOAA's *Strategic Plan: A Vision for 2005*; hydrographic survey contracts, task orders, and related procurement documents; Office of Coast Survey's *National Survey Plan* and FYs 2001 and 2002 spending plans; a management control review entitled *Contracting for Hydrographic Surveying and Related Services*, produced by the Hydrographic Surveys Division; *NOAA's Program Review*; and a report from Mitretek entitled *Hydrographic Survey Data Collection/Analysis, Conclusions, and Recommendations*.
- **Interviews.** We spoke with officials and staff in NOAA's Acquisitions and Grants Office, Office of Coast Survey, and Hydrographic Surveys Division. We also interviewed an official of a private management association that represents the interests of survey contractors.
- **On-board observations.** We accompanied the crew of the NOAA vessel *Bay Hydrographer* on a mission, to observe and understand the operation of a hydrographic survey vessel.

Our review was conducted in accordance with generally accepted government auditing standards and was performed under the authority of the Inspector General Act of 1978, as amended, and Department Organization Order 10-13, dated May 22, 1980, as amended. We conducted our fieldwork from April to December 2002 at NOAA headquarters in Silver Spring, Maryland.

## FINDINGS AND RECOMMENDATIONS

### **I. NOAA Should Establish Effective Controls to Better Manage, Stabilize, And Document the Critical Survey Backlog**

NOAA needs to establish effective controls to manage, stabilize and document the “critical survey backlog.” We found that NOAA cannot support with original nautical charts the specific areas comprising the original baseline for the 1994 critical backlog. NOAA subsequently changed the composition of the baseline and, despite an effort in 2000 to stabilize it, continues to make changes. NOAA officials told us that the bureau lacks written policies and procedures that ensure accountability over the composition of the critical survey backlog. Without such controls, NOAA cannot provide assurance that it is making appropriate progress toward reducing the backlog.

#### **A. NOAA does not have effective management controls over the critical survey backlog.**

In 1994, NOAA identified a baseline of approximately 43,000 square nautical miles as critical areas in need of hydrographic surveys, reportedly documenting the specific location of each area on a nautical chart and hand-annotating the chart with relevant survey data. However, NOAA officials told us that the originally hand-annotated charts are no longer available, that they were perhaps lost during a move from Rockville to Silver Spring. NOAA used these charts to establish and support the original 1994 baseline.

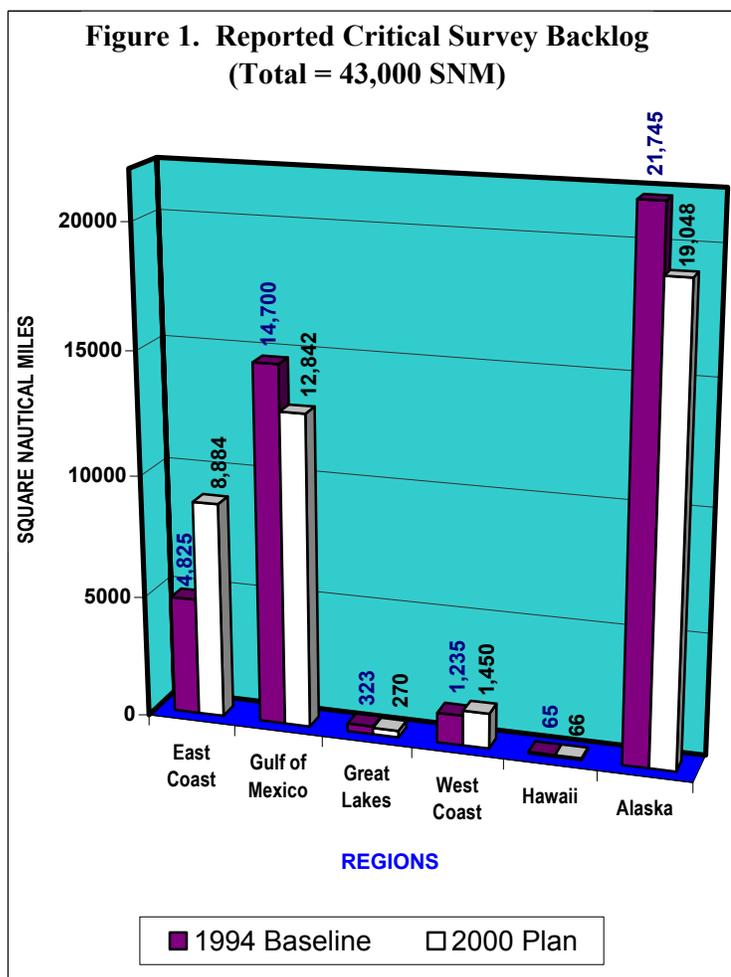
NOAA officials acknowledge that between 1994 and 2000 they modified the original baseline—substituting newly identified critical areas for less critical ones and removing other areas that they determined were less critical. However, NOAA did not track these changes or justify its decision to remove areas no longer considered to be part of the critical survey backlog.

In 2000, NOAA formalized the modifications, publishing the revised backlog in the Office of Coast Survey’s *National Survey Plan* (November 2000). The new backlog, which differs substantially from the original (see Figure 1 on the next page), (a) reflects areas surveyed since 1994, (b) identifies areas subsequently determined to be most in need of survey, and (c) attempts to stabilize the boundaries of the backlog and thus facilitate control over it. While this attempt to document and stabilize the backlog was needed, the *National Survey Plan* does not disclose to Congress or other decisionmakers that the composition of the original (1994) baseline has been changed. Decision makers should have full and accurate information about such changes in order to evaluate the government’s effectiveness in reducing the critical survey backlog.

In addition, the plan does not stabilize the boundaries of the backlog. Although one NOAA official told us that with publication of the survey plan no additional changes to the backlog were to occur, another official confirmed that changes are still being made.

We attempted to identify and verify the areas that comprised the original backlog, as well as NOAA’s progress toward reducing it. However, we were unable to do either because NOAA cannot locate the charts and documents that detailed the original 43,000 square nautical miles. NOAA officials acknowledged that they have not accurately tracked the critical survey backlog and that better controls are needed.

GAO’s *Standards for Internal Controls in the Federal Government* states that, “Internal control and all transactions and other significant events need to be clearly documented, and the documentation should be readily available for examination.” NOAA should implement policies and procedures that, at a minimum, (1) establish and maintain a stable, supportable baseline for the critical survey backlog, and ensure accountability over it; and (2) allow only those modifications that reflect completed surveys or the delisting of once-critical areas that have been properly justified and approved as no longer requiring critical status.



**B. Recommendations**

The Under Secretary for Oceans and Atmosphere should require NOAA to implement written policies and procedures that, at a minimum, do the following:

1. Fully and accurately disclose the nature, extent of, and rationale for all modifications made to the original 1994 critical survey backlog, in the Office of Coast Survey’s *National Survey Plan* and in all future budget requests and performance reports.
2. Establish and maintain a stable baseline for the critical survey backlog, supported by nautical charts that delineate specific survey locations.

3. Ensure accountability over the composition of the baseline to
  - a. allow only those modifications that reflect reductions based on completed surveys or properly justified and approved removal of areas no longer deemed critical; and
  - b. require preservation and protection of supporting nautical charts and related documents that identify the specific survey details and locations for each critical area.

### **C. NOAA Response**

NOAA concurs with recommendations #1, 2, and 3b, but did not respond to recommendation #3a. Regarding recommendation #1, NOAA states that the information needed to document all the changes made to the 1994 baseline is not available. As an alternative, it is in the process of developing the 2003 version of the *National Survey Plan* and will document the changes to the 2000 baseline and institute a system for documenting all future changes to the 2003 baseline.

Concerning recommendations #2 and #3b, NOAA states that a new stable baseline for the critical survey backlog is currently being developed in a state-of-the-art Geographic Information System in much more detail than previous versions. The delineation of specific survey locations will be maintained on modern digital nautical charts, which will be backed up to ensure data redundancy.

### **D. OIG Comments**

NOAA's reply is partially responsive to recommendation #1. NOAA states that it does not have the information needed to document *all* the changes it made to the 1994 baseline. NOAA should still fully disclose in the *National Survey Plan* and in all future budget requests and performance reports the fact that modifications were made and, based on available information, summarize the nature, extent of, and rationale for them. In its audit action plan, NOAA should specify the steps it will take to make such disclosures.

NOAA's reply is responsive to our recommendations #2 and #3b.

With respect to recommendation #3a, NOAA should specify in its audit action plan the steps it will take to ensure accountability by allowing only the indicated modifications to the critical survey backlog.

## **II. NOAA Should Ensure That Survey Work is Consistent With Its Justification to Congress**

NOAA must ensure that “Address Survey Backlog” funds are used in a manner that is consistent with the justification that NOAA submitted to Congress in seeking funds for this program. During FYs 2001 and 2002, NOAA obligated \$6.5 million of this line item for contractor surveys of locations not identified as “critical survey backlog” in its *National Survey Plan* issued in November 2000. Without appropriate controls, NOAA may ultimately require larger appropriations under this line item to achieve the stated goals.

### **A. NOAA is not always using appropriated “Address Survey Backlog” funds as justified to Congress.**

When Congress created the separate budget line item—“Address Survey Backlog”—it made clear that the funding was to be used to hire private sector surveyors to help reduce the critical survey backlog.<sup>6</sup> In an internal report<sup>7</sup>, NOAA indicates that appropriated funds in the “Address Survey Backlog” line item should only be used for the critical survey backlog. However, we found that funds from this budget line item are used to pay hydrographic surveyors for work NOAA considers important but is not always listed as part of the critical survey backlog in the plan.

Our review of NOAA records for the 12 task orders issued to hydrographic surveyors during FYs 2001 and 2002<sup>8</sup> showed that 21 percent (384 square nautical miles) of some 1,795 square nautical miles surveyed were outside the revised critical backlog identified in the *National Survey Plan* (see Appendix A), yet NOAA charged all miles to its official accounting classification code (8K6JKR) that tracks obligations for the “Address Survey Backlog” line item. Appendix A lists the task orders and the number of square nautical miles that contractors surveyed inside and outside the critical backlog that was identified in the *National Survey Plan*. We found that for these 12 task orders, charges for work not identified as critical survey backlog for the 2-year period equaled \$6.5 million, or 24 percent of \$27.3 million obligated (see Appendix B).

NOAA officials said that the agency has no written policies and procedures restricting the use of funds from this line item to areas in the *critical* survey backlog. They believe that these funds can be used for both critical and noncritical<sup>9</sup> surveys.

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<sup>6</sup> *House Report 105-636*, Committee on Appropriations, FY 1999, 7/20/98 (pp. 81, 86); *Answers to Post-Hearing Questions Submitted by Members of the Subcommittee on Energy and Environment*, FY 2000, 2/24/99 (pp. 1126, 1127); and *House Report 107-139*, Committee on Appropriations, FY 2002, 7/13/01 (pp. 71, 79, 80).

<sup>7</sup> *Contracting for Hydrographic Surveying and Related Services*, National Ocean Service, 9/00 (pp. 1,25,26).

<sup>8</sup> Based on task orders awarded as of 7/31/02.

<sup>9</sup> Use of the term “noncritical” in this report describes those square nautical miles classified by NOAA in its *National Survey Plan* as “navigationally significant” but not part of the “critical survey backlog.”

By using “Address Survey Backlog” funds to pay for surveys outside the critical backlog area, NOAA increases the total amount of funding that Congress must appropriate to accelerate reduction of the backlog and impairs efforts to link resources with performance. Therefore, it is essential that NOAA implement written policies and procedures to ensure that the use of “Address Survey Backlog” funding is consistent with the use that NOAA indicated to the Congress. It is important to note that other areas outside the “critical backlog,” even areas adjacent to the backlog, need to be surveyed, but NOAA has separate funding appropriated for this work.

## **B. Recommendation**

The Under Secretary for Oceans and Atmosphere should ensure that NOAA develops written policies and procedures that require it to use “Address Survey Backlog” funds for their intended purpose. This could be accomplished by accounting for and allocating the critical and noncritical work between the two separate appropriations. This would strengthen the link between NOAA resources and performance.

## **C. Funds to be put to better use**

Based on our analysis of NOAA’s obligations charged to the “Address Survey Backlog” line item (8K6JKR) during FY 2001 and FY 2002 (through July 2002), implementing our recommendation will result in average annual funds to be put to better use of \$3.25 million or \$6.5 million (see Appendix B) over the next two fiscal years. NOAA’s implementation of our recommendation will result in Congress knowing that “Address Survey Backlog” funds designated for reducing the critical survey backlog are being used to reduce the backlog. Additionally, we estimate that NOAA’s remaining 15-year commitment (FY 2003 through FY 2017) to eliminate the critical survey backlog could be reduced by 3 years if the funds were used as intended to hire private sector surveyors to specifically reduce the critical survey backlog (see Appendix C).

## **D. NOAA Response**

NOAA concurs with the recommendation but states that it believes it has expended “Address Survey Backlog” funds for their intended purpose of outsourcing. It explains that the history of the “Address Survey Backlog” budget line item indicates that the primary and overriding intent of Congress was to create a line item dedicated *exclusively* to supporting outsourcing. NOAA also believes that Congress intended for the bureau to target its outsourcing efforts to survey *priority* backlog requirements, especially areas designated as critical.

Despite NOAA’s belief that “Address Survey Backlog” funds were used for their intended purpose, it concurs that such funds can be put to better use. However, NOAA disagrees with our calculation of \$6.5 million over the next two fiscal years, asserting that it is slightly more than \$1 million. A summary of NOAA’s rationale for rejecting the OIG’s calculations is included in Appendix D.

## **E.     OIG Comments**

Although NOAA states that it concurs with our recommendation, its reply is only partially responsive. The intent of our recommendation is that NOAA should develop written policies and procedures that require it to restrict the use of “Address Survey Backlog” funds to outsourcing for surveys in the *critical* survey backlog areas. As we note in our report, NOAA justified to Congress, when seeking funds for this program, that the “Address Survey Backlog” budget line item was to be used to hire private sector surveyors to help reduce the *critical* survey backlog. NOAA has separate funding appropriated for its *priority* work other than the critical survey backlog. We, therefore, reaffirm our recommendation and request that NOAA include in its audit action plan the steps it will take to fully implement our recommendation.

Regarding funds to be put to better use, NOAA did not provide details to support its calculation of slightly more than \$1 million. Also, we do not agree with NOAA’s rationale for rejecting the OIG calculations. We, therefore, stand by our calculation of \$6.5 million of funds to be put to better use over the next two years. We include the details of our position in Appendix D.

### III. NOAA Needs to Track the Full Costs of Its Hydrographic Surveys Program

GAO's *Standards for Internal Control in the Federal Government*<sup>10</sup> require agencies to (1) track and record program costs and (2) disseminate this data within a time frame and in a format that enables pertinent agency personnel to carry out their program-related responsibilities. The Federal Accounting Standards Advisory Board's (FASAB) *Statement of Federal Financial Accounting Standards No. 4* (July 1995) states that federal entities should report the full costs of resources used to produce their outputs, regardless of funding sources.

Despite the importance of hydrographic surveys to achieving NOAA's performance goal of promoting safe navigation, the Hydrographic Surveys Division does not track the full cost of its hydrographic surveys program, consisting of both critical and noncritical surveys, and hence cannot (nor does it attempt to) periodically report those costs to NOAA managers. Without knowing the full costs of the Hydrographic Surveys Division's survey activities, NOAA cannot provide reasonable assurance that it is making optimal use of public resources appropriated for conducting surveys or that appropriations are sufficient for accomplishing their intended purpose.

#### A. The Hydrographic Surveys Division does not track and report the full cost of conducting surveys.

According to Hydrographic Surveys Division officials, NOAA has no policies or procedures that support federal standards for tracking and reporting full costs for conducting its hydrographic surveys program, including its critical and noncritical components, although the bureau has at least twice endorsed the need to track such costs:

- (1) The *NOAA Program Review*<sup>11</sup> supports the Budget and Performance Integration Initiative of the President's Management Agenda, which calls for integrating performance with the full cost of government programs. The review recommended, among other things, that NOAA use activity-based costing and other formal tools and measures for accountability and performance-based management. Activity-based costing measures the actual cost and performance of process-related activities.
- (2) NOAA's *Commerce Administrative Management System's Program Management Plan*<sup>12</sup> supports FASAB's *Statement No. 4* and stipulates that agency outputs and outcomes be evaluated on the basis of their accumulated and reported costs, consistent with cost accounting standards.

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<sup>10</sup> Reissued in November 1999.

<sup>11</sup> *NOAA Program Review*, May 2002 (p. 20).

<sup>12</sup> Issued April 27, 1998 (p. 2).

The Hydrographic Surveys Division's accounts of survey costs are incomplete and based on informal information. For example, the division distributes an internal "baseline" cost document annually to its staff and to support personnel in the Office of Coast Survey and the National Ocean Service, the purpose of which is to track costs and accomplishments. However, the information included in the document is unofficial and excludes the division's overhead and in-house survey costs. Similarly, the Office of Coast Survey issues periodic spending plans that contain official NOAA contract costs for the "Address Survey Backlog" line item, but the plans do not include official in-house survey costs.

NOAA agreed that there is a need to track and periodically report the full costs of conducting surveys. Knowing full costs will enable the Hydrographic Surveys Division to be in a position to better manage the effort, including the ability to:

- better control current expenditures and budget execution;
- develop relevant and consistent budget requests;
- improve program efficiency, effectiveness, and results;
- recover costs on any future reimbursable work it may perform;
- determine resource costs to support cost-benefit considerations<sup>13</sup>; and
- improve decision making related to competitive sourcing.

Without full cost information, NOAA cannot provide reasonable assurance to stakeholders that it is using resources efficiently to conduct hydrographic surveys, nor can it predict the level of funding required to meet this challenge.

## **B. Recommendation**

The Under Secretary for Oceans and Atmosphere should take the necessary actions to strengthen NOAA's management of its hydrographic surveys program by implementing policies and procedures that require the Hydrographic Surveys Division to track its full cost, including the critical and noncritical components, and periodically report this information to the appropriate NOAA officials.

## **C. NOAA Response**

NOAA concurs with the recommendation regarding funding under the control of the Office of Coast Survey. However, NOAA states that the Office of Coast Survey cannot mandate detailed cost accounting for in-house assets associated with ship operations controlled by the NOAA

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<sup>13</sup> Refer to OIG's report entitled *Improvements Needed in the Reporting of Performance Measures Related to Promoting Safe Navigation and Sustaining Healthy Coasts* (FSD-14998-3-0001, 2/03, p. 9). The OIG points out that NOAA should report annual expenditures, along with reductions of the critical survey backlog, in the *U.S. Department of Commerce FY 2001 Annual Program Performance Report/FY 2003 Annual Performance Plan*.

Marine and Aviation Operations. The Office of Coast Survey will continue to track the full costs of the Hydrographic Surveys Division.

**D.     OIG Comments**

NOAA's reply is partially responsive to our recommendation. While we are pleased that the Hydrographic Surveys Division, which manages the program, will continue to track the costs under its control, the intent of our recommendation was that the Hydrographic Surveys Division track and report the *full* costs of the hydrographic surveys program. One possible solution is for NOAA to establish a written procedure that requires appropriate organizational components, such as the NOAA Marine and Aviation Operations and Finance Office, to routinely provide cost information to the Hydrographic Surveys Division for compilation and report preparation and distribution. NOAA should specify in its audit action plan the steps it will take to implement the intent of our recommendation.

#### **IV. NOAA Should Enforce Due Dates For Delivery of Contractors' Completed Surveys**

NOAA needs to strengthen its internal controls over contractor surveys by enforcing due dates for delivery of completed surveys and other work products (“deliverables”), as stipulated in the task orders, and establishing interim milestones against which to measure contractors’ progress. Despite contract requirements for timeliness, private sector surveyors have been submitting their deliverables late. A NOAA official explained that in the interest of obtaining the highest quality data, deliverables are often returned to contractors—sometimes several times—for improvement. While we recognize the importance of high quality data, NOAA must, nevertheless, better manage task order due dates for final deliverables in order to assure stakeholders that it is doing all it can to expedite reduction of the critical backlog.

##### **A. Survey contractors are not complying with task order delivery dates.**

Private sector companies provide hydrographic surveying services under contract task orders issued by a NOAA contracting officer. These agreements specify the survey area, amount of funds obligated, types of and due dates for deliverables (which include preliminary smooth sheets and digital data files). The contracts also stipulate government remedies, including termination, for a contractor’s failure to furnish final deliverables on time.

We reviewed contractors’ compliance with the due dates for final deliverables—reviewing the submission dates for 24 completed task orders issued to five different contractors during FYs 1999 through 2002. For 21 (88 percent) task orders, contractors submitted final deliverables late—with delays ranging from 4 days to more than 6 months. Delays of 3 to 6 months or more—which occurred in 8 cases (38 percent)—are particularly significant, given that the planned performance periods for the 24 task orders averaged only about 5 months. Also, we examined 13 of these task orders and found that none included interim due dates, or milestones, for final deliverables.

A NOAA procurement official explained that in the interest of obtaining the highest quality data possible and reducing verification time, the Hydrographic Surveys Division’s processing branches returned the deliverables to contractors for improvement, typically cartographic edits. According to NOAA, longer delays were sometimes due to a contractor’s inexperience with the type of survey work specified in the task order.

One possible solution is for NOAA to incorporate interim due dates into contract task orders, thereby more quickly identifying potential problems, allowing more time for corrective action, and increasing the likelihood that contractors will submit acceptable final deliverables on time. Better monitoring of task order due dates and the use of interim milestones should improve both the quality and timeliness of final deliverables.

**B. Recommendation**

To strengthen internal controls over contractor performance and expedite backlog reduction while ensuring quality deliverables, the Under Secretary for Oceans and Atmosphere should take the necessary actions to better monitor task order due dates for final deliverables, and include in these contract documents formal interim due dates, or milestones.

**C. NOAA Response**

The Office Coast Survey concurs with this recommendation.

## **V. NOAA Should Implement a Detailed Work Plan for Eliminating the Critical Backlog**

Despite federal legislation and guidance stressing the need to integrate program planning and goals—and NOAA’s own endorsement of this approach—NOAA’s critical survey backlog program is not based on such integration: the bureau has not implemented a detailed and documented work plan that provides cost and schedule goals for eliminating the backlog. NOAA officials told us that estimating the cost of completing the critical survey backlog would require multiple caveats that allow for variables beyond the bureau’s control. However, without a detailed, documented plan, NOAA risks prolonging the process of eliminating the backlog.

### **A. NOAA has not implemented a detailed work plan that includes cost and schedule goals.**

The Government Performance and Results Act of 1993 (P.L. 103-62) requires agencies to develop strategic plans and set performance goals. OMB Circular A-123 (Revised), *Management Accountability and Control*, states that these plans and goals should be integrated into (1) the budget process and (2) the operational management of agencies and programs. GAO’s *Standards for Internal Control in the Federal Government*<sup>14</sup> states that effective internal control, which includes proper planning and documentation, is a key factor in meeting agency goals. NOAA’s May 2002 *Program Review*<sup>15</sup> identifies business processes and best practices—such as integrated planning, performance goals, and corrective action plans—for building and sustaining effective management, and specifically mentions hydrographic surveys as an example of a significant imbalance between resources and requirements, i.e., resources provided to do the work and NOAA’s overall requirements to ensure safe navigation of all the coastal waterways.

NOAA, however, has not developed a detailed and documented work plan that includes cost and schedule goals for expediting elimination of the critical survey backlog, and we could, therefore, not adequately assess the bureau’s progress toward eliminating the backlog. NOAA officials told us that, in lieu of such a plan, they follow the National Ocean Service’s *Strategic Plan*, the Commerce *Annual Program Performance Report/Plan*, and budget initiatives. But neither these documents nor its *National Survey Plan* contain cost and schedule goals and other relevant information, such as staffing, contracting, training, vessels, and equipment needed to expedite elimination of the critical backlog. Further, NOAA officials cautioned that any formal estimate of the cost of completing backlog survey work would require multiple scenarios to accommodate unknown variables, such as future ship, fuel, personnel, and contract costs; out-year weather predictions; technology changes; and homeland security needs or other national priorities; and would thus be almost meaningless. However, planning is, by nature, an evolving process that must be based on reasonable assumptions that allow for adjustments in response to changing conditions.

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<sup>14</sup> Reissued in November 1999.

<sup>15</sup> *NOAA Program Review*, May 2002 (pp. 15, 20, 67).

Congress has emphasized the importance of *timely* reduction of the critical survey backlog. For example, the Committee on Appropriations stated in its House report on NOAA's FY 1999 budget,<sup>16</sup> "The Committee continues to believe that a 30-year backlog in updated charts and surveys for critical navigable waters is completely unacceptable and expects NOAA and the Administration to make navigation safety a high priority in future budget requests." Also, a management consultant hired by NOAA stated: "The notion that a 20-year backlog of critically needed surveying exists was both decried as taking too much time and ridiculed as intuitively not reflecting of anything truly critical."<sup>17</sup> The consultant recommended that a more reasonable time frame for addressing this work be established.

NOAA must take the appropriate steps to reduce the critical survey backlog in a timely manner. NOAA's current approach and implementation call into question the urgency and necessity of its efforts to eliminate the critical survey backlog within a *reasonable* timeframe. A detailed work plan with cost and schedule goals for eliminating the backlog under different scenarios (e.g., 5, 10, and 15 years) would provide such a timeframe and would help speed the survey process by providing (1) direction to NOAA officials and staff responsible for eliminating the critical backlog and (2) a basis for realistic budget requests to Congress. Without such a plan, it seems unlikely that NOAA will achieve its objective in a timely manner.

## **B. Recommendation**

The Under Secretary for Oceans and Atmosphere should take the necessary actions to require NOAA to implement a detailed and documented work plan that includes cost and schedule goals and thereby expedite reduction of the critical survey backlog.

## **C. NOAA Response**

NOAA does not concur with the recommendation because it is inconsistent with the dynamic nature of the critical hydrographic survey backlog work plans. NOAA continually makes projections on the estimated time necessary to complete the critical backlog in a *very general way* based on reasonable assumptions. However, those assumptions deal with numerous variables. Changes in the assumptions and the numerous variables will immediately render any detailed work plan obsolete. NOAA states that it will continue to develop *general* work plans based on current appropriations and technology.

## **D. OIG Comments**

We reaffirm our recommendation. While we recognize the dynamic nature of NOAA's plans to eliminate the critical survey backlog, this characteristic does not negate the need to implement a detailed and documented work plan that includes cost and schedule goals. Fundamental to

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<sup>16</sup> *House Report 105-636*, July 20, 1998, p. 86.

<sup>17</sup> *Hydrographic Survey Data Collection/Analysis, Conclusions, and Recommendations*, Mitretek Systems (October 1998, pp. 33, 34).

planning is the issue of accountability. Without documented plans that include specific cost and schedule goals, NOAA cannot provide assurance that it will be accountable for time and resources. As we noted in our report, Congress emphasized the importance of *timely* reduction of the critical survey backlog. We believe that NOAA's general work plans lack the objective and quantifiable goals necessary for measuring whether the bureau has been accountable for time and resources. Such goals are particularly suitable to plans for eliminating the critical survey backlog because, unlike some research activities, NOAA's output, completed nautical surveys, is objective and quantifiable.

**APPENDIX A**

Percent of Contractor-Surveyed Square Nautical Miles Outside the Critical Backlog FYs 2001 and 2002 <sup>a</sup>						
Number			Number of Square Nautical Miles (snm) Surveyed			(7) Percent Outside the Critical Backlog (Cols 6/4)
(1) Task Order(s)	(2) Contract No.	(3) Project	(4) Total <sup>b</sup> (snm)	(5) Inside Critical Backlog <sup>b</sup> (snm)	(6) Outside Critical Backlog <sup>b</sup> (snm)	
FY 2001						
5	50-DGNC-0-90003	KR-P385	62	25	37	60
4	50-DGNC-0-90017	KR-P182	850	623	227	27
1	50-DGNC-1-90012	KR-K379	169	169	0	0
4,6,7	50-DGNC-0-90015	KR-D307	197	197	0	0
5	50-DGNC-9-90011	KR-L328	22	0	22	100
2	50-DGNC-9-90012	KR-F336	54	0	54	100
			1,354	1,014	340	25
FY 2002 <sup>a</sup>						
2	50-DGNC-1-90012	KR-K379	232	232	0	0
9	50-DGNC-0-90015	KR-C303	80	66	14	18
6	50-DGNC-0-90003	KR-O331	40	40	0	0
8	50-DGNC-0-90017	KR-O309	89	59	30	34
Totals			441	397	44	10
<b>Grand Totals</b>			<b>1,795</b>	<b>1,411</b>	<b>384</b>	<b>21%</b>
<sup>a</sup> As of July 31, 2002.						
<sup>b</sup> As identified in NOAA's <i>National Survey Plan</i> issued in 2000.						

**APPENDIX B**

<b>Survey Task Orders For Which Obligations Were Charged to "Address Survey Backlog" Line Item (8K6JKR) For Work Outside the Critical Survey Backlog FYs 2001 and 2002<sup>a</sup></b>					
Number					
(1)	(2)	(3)	(4)	(5)	(6)
Task Order(s)	Contract No.	Project	Total Amount Obligated	Percentage of Square Nautical Miles Outside Critical Backlog <sup>b</sup>	Amount Charged to "Address Survey Backlog" Line Item (Col 4 X Col 5)
FY 2001					
5	50-DGNC-0-90003	KR-P385	\$ 1,894,043	60%	\$1,136,426
4	50-DGNC-0-90017	KR-P182	7,687,678	27	2,075,673
1	50-DGNC-1-90012	KR-K379	2,486,246	0	0
4,6,7	50-DGNC-0-90015	KR-D307	3,442,011	0	0
5	50-DGNC-9-90011	KR-L328	626,939	100	626,939
2	50-DGNC-9-90012	KR-F336	1,098,396	100	1,098,396
Totals			\$17,235,313		\$4,937,434
FY 2002 <sup>a</sup>					
2	50-DGNC-1-90012	KR-K379	\$3,155,059	0	0
9	50-DGNC-0-90015	KR-C303	1,473,313	18	\$ 265,196
6	50-DGNC-0-90003	KR-O331	1,630,163	0	0
8	50-DGNC-0-90017	KR-O309	3,806,176	34	1,294,100
Totals			\$10,064,711		\$1,559,296
<b>Grand Totals</b>			<b>\$27,300,024</b>	<b>24%<sup>c</sup></b>	<b>\$6,496,730<sup>d</sup></b>
<sup>a</sup> As of July 31, 2002. <sup>b</sup> Source: Appendix A, column 7. <sup>c</sup> \$6,496,730 divided by \$27,300,024. <sup>d</sup> \$6,496,730 divided by 2 equals \$3.25 million (rounded), the average annual funds to be put to better use.					

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## APPENDIX C

### Supplemental Information Relating to Funds to Be Put to Better Use

The OIG estimates that NOAA's remaining 15-year commitment to eliminate the critical survey backlog can be reduced by 3 years from funds to be put to better use, as follows:

- |  |                           |
|--|---------------------------|
| 1. Average annual appropriation from the line item "Address Survey Backlog" (8K6JKR)   | \$17,940,000 <sup>1</sup> |
| 2. Total funds to be put to better use over NOAA's remaining 15-year commitment (FY 2003 through FY 2017)  | \$48,750,000 <sup>2</sup> |
| 3. Number of years of annual appropriation for "Address Survey Backlog" eliminated by using these funds exclusively for the critical survey backlog (#2 divided by #1) | 2.7 yrs. (3 yrs. rounded) |

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<sup>1</sup> \$89.7 million divided by five years (FY 1998 through FY 2002). See page 2 of this report.

<sup>2</sup> \$3,250,000 average annual funds to be put to better use times 15 years.

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## APPENDIX D

### Summary of NOAA's Response to Funds To Be Put To Better Use And Related OIG Comments

In its reply to our draft audit report, NOAA provided its position on the funds to be put to better use that will result from implementing our recommendation relating to the use of "Address Survey Backlog" funds (see report page 8). We have summarized below the details of NOAA's response, followed by our comments. A copy of NOAA's complete response, including the details relating to the funds to be put to better use, is included in Appendix E.

#### NOAA Response

Despite NOAA's belief that "Address Survey Backlog" funds were used for their intended purpose, it concurs that such funds can be put to better use. However, NOAA disagrees with our calculation of \$6.5 million over the next two fiscal years, asserting that it is slightly more than \$1 million.

Specifically, NOAA asserts that the calculations that we used to determine the \$6.5 million of funds to be put to better use are based on numerous incorrect assumptions and insufficient analysis, as follows:

#### 1. Fixed Costs

Each survey incurs fixed costs that are independent of the amount of work that is done. The OIG did not remove fixed costs from its calculations for the surveys that contractors conducted in the critical backlog areas when such surveys included work both inside and outside of such areas.

#### 2. Water Depth

The water depth of the area must be taken into consideration because fewer survey lines and less time are needed to cover the seafloor in deeper areas than in areas containing shoals that are closer to shore that may contain rocks and other hazards to navigation.

#### 3. Survey Area Classification

Included in the OIG's calculations was one task order that addressed a new high priority area, one that was a critical survey area that had been omitted by error from the *National Survey Plan*, and two task orders that included "resurvey areas."

## OIG Comments

We reaffirm our calculation of \$6.5 million of funds to be put to better use over the next two years. NOAA's response did not include details to support its calculation of slightly more than \$1 million. Also, we do not agree with NOAA's rationale for rejecting the OIG calculations, as follows:

### 1. Fixed Costs

The cost of the surveys that we used to calculate the funds to be put to better use were based on NOAA's obligations of firm fixed-price contract task orders (see Appendix B). NOAA issued these task orders to the contractors for a fixed price to obtain hydrographic surveys for certain areas, inside and outside of the critical survey backlog, identified in the statements of work. We agree with NOAA that certain fixed costs for the contractor can be reduced by having the contractor do additional work outside the critical backlog areas. However, we disagree that critical backlog funds can be used to pay for the additional work. NOAA receives separate funding that can be used for the additional work.

### 2. Water Depth

Water depth was considered in our analysis. We believe that during negotiations with the government, survey contractors, as a matter of prudent business practice, take into account the relevant factors, including water depth, topography, and hazards to navigation, that will impact their operating costs and, therefore, the firm fixed prices of the task orders. For this reason, the uniform cost per square nautical mile of the task orders used in our analysis reflects the mitigating influence of deep water, where appropriate. In addition, our analysis was based on the entire universe, not a sample, of the 12 task orders that NOAA issued to hydrographic surveyors during FYs 2001 and 2002<sup>1</sup>. These task orders included surveys in a wide variety of areas—East and West Coasts, Gulf of Mexico, and Alaska—and each area contains varying topography, obstacles to navigation, and water depth.

### 3. Survey Area Classification

The four task orders that NOAA cites covered areas that were all outside of the critical survey backlog included in its *National Survey Plan* and, therefore, were appropriately incorporated into our analysis. This classification is based on documents, which include a summary and printouts from its Geographic Information System, that a NOAA official provided to us during our audit fieldwork. As we point out in our report, documentation of all transactions and other significant events is essential in establishing effective control over the critical survey backlog.

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<sup>1</sup> Based on task orders awarded as of 7/31/02.



UNITED STATES DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration  
NOAA FINANCE AND ADMINISTRATION  
CHIEF FINANCIAL OFFICER/CHIEF ADMINISTRATIVE OFFICER

JUN 6 2003

MEMORANDUM FOR: Michael Sears  
Assistant Inspector General for Auditing

FROM: Helen Hurcombe *Helen Hurcombe*

SUBJECT: Response to the OIG Draft Report: *Process for Reducing  
the Critical Hydrographic Survey Backlog Lacks Key  
Management Controls*  
Draft Audit Report No. STD-15120

The National Oceanic and Atmospheric Administration (NOAA) appreciates the opportunity to respond to your draft audit report. We fully concur with five of the six recommendations. However, we do not concur with the final recommendation on page 14. NOAA disagrees with this recommendation because it is inconsistent with the dynamic nature of the critical hydrographic survey backlog work plans. The National Ocean Service's Office of Coast Survey continually makes projections on the estimated time necessary to complete the critical backlog in a very general way based on reasonable assumptions; however, those assumptions deal with numerous variables. Changes in the assumptions and the numerous variables will immediately render any detailed work plan obsolete. Page 13 of the draft report states that "... planning is by nature, an evolving process that must be based on reasonable assumptions that allow for adjustments in response to changing conditions." We believe that this statement supports our position and contradicts the recommendation.

NOAA agrees that management controls should be strengthened to eliminate this backlog and will take steps to implement the audit recommendations.

Thank you for the opportunity to respond. Our response to your draft report is attached.

Attachment



**National Ocean Service Comments on the Draft OIG Audit Report,  
“Process for Reducing the Critical Hydrographic Survey Backlog  
Lacks Key Management Controls”  
Draft Audit Report No. STD-15120/March 2003**

**A. Recommended Changes for Factual Information**

1. Page 2, second paragraph, second sentence. The NOAA Office of Marine and Aviation Operations (NMAO) does not provide field personnel or vessel support for surveys conducted by private contractors.
2. Page 4, first paragraph, second sentence. The statement that “NOAA cannot identify and document the specific areas comprising the original baseline for the 1994 critical backlog” is incorrect. A detailed listing of the 97 areas that comprised the 1994 critical backlog was compiled by OCS on June 28, 2002, and presented to the OIG auditors on July 1, 2002. While it is true that the OCS discarded the original paper nautical charts, which portrayed a graphical representation of these 97 areas, OCS transferred the graphical depiction of the critical survey areas to a digital Geographic Information System (GIS) in April 1999, and as stated above, provided printouts to the OIG. It is also correct that the composition of the baseline was modified over the years in a “no net gain” process, but this was done to reflect the changes in priorities that occurred due to new navigational requirements. The changes are documented in the above referenced June 28, 2002-spreadsheet, a copy of which is attached.
3. Page 7 (paragraphs 1 and 3) and Pages 15-16 (Appendices A and B). The calculations used by the OIG to determine that \$6.5 million of “Address Survey Backlog” funds were used for surveys not identified as “critical survey backlog” are incorrect. There are numerous incorrect assumptions and insufficient analysis to support the \$6.5 million estimate.
  - a. Each survey incurs fixed costs that are independent of the amount of work that is done. Surveys for four of the six task orders cited for work outside the critical survey backlog area included work in critical areas. Therefore, the fixed costs associated with these surveys used in the OIG analysis should be removed before calculating survey costs outside the designated critical areas.
  - b. The water depth of the area must be taken into consideration because fewer survey lines and less time are needed to cover the seafloor in deeper areas than in shoaler areas closer to shore that may contain rocks and other hazards to navigation. This is particularly significant on the Southwest Alaska Peninsula survey (KR-P182) where the survey work completed outside the critical area was accomplished in less than a week and half of

that was completed in water depths that met the stated criteria for a critical survey. Deeper water depth also mitigates the time and cost associated with the Icy Bay survey (KR-O309).

- c. One cited task order (Port Hueneme, California - KR-L328) addressed a new high priority area that would have required the transit of a NOAA vessel over two thousand miles (6 days of non-productivity) to reach the survey area, while a contractor asset was already mobilized in California.
- d. The Pamlico Sound, North Carolina survey (KR-F336) was in fact a critical survey area that had been omitted by error from the National Survey Plan (NSP).
- e. The portion of the survey area on the Upper Cook Inlet, Alaska, task order that was outside the critical survey area is part of the "resurvey area" identified in the NSP. It has been designated as such due to the highly changeable nature of the seafloor from sediment deposition from glacier runoff and needs to be resurveyed every three to four years.
- f. Most of the area identified as outside the critical survey backlog area for KR -C303 (New Jersey Coast) also falls within the NSP "resurvey area."

Considering all of the above, NOAA calculates the actual cost of contracted survey work done outside of the critical areas identified in the NSP (not including the new critical survey area, the resurvey areas or the area that had been omitted) to be slightly more than \$1 million. A substantial portion of this was actually expended on areas that meet the criteria for critical survey areas, but were not identified as such due to the "general planning area" approach of the NSP.

## **B. General Comments**

1. It is NOAA's belief that the often accusatory tone throughout the report is unwarranted. In the final analysis, the report's findings and recommendations say that NOAA should improve planning and management. NOAA agrees and takes this seriously. NOAA is constantly working to improve the administration of its programs. But the tone of the report suggests something more sinister than the facts support. For example:
  - a. The report could be revised to reflect a less adversarial attitude without detracting from the substance of the findings. The title could be reworded to be "Management Controls for Reducing the Critical Hydrographic Survey Backlog Should Be Improved."

- b. Pages 7 and 8 of the report imply that OCS has mismanaged appropriated funds when, in fact, the shortcoming was a failure to accurately report that the critical survey areas are changeable.
  - c. Pages 11 and 12 suggest that OCS has mismanaged work done by contractors by failing to rigorously enforce due-date compliance for deliverables. In fact, OCS has found its contract management style to be most effective with contractors learning to produce to the demanding quality standards required by OCS. This has likely resulted in more efficient contractor performance than would have been achieved with a hard line management style.
  - d. Lastly, pages 13 and 14 imply that OCS has not properly planned to complete the survey backlog. In fact, survey planning has been extensive but flexible enough to respond to the ever-changing navigational needs of the nation. A more accurate recommendation would be for improved reporting.
3. The use of the term "non-critical" to describe areas outside the critical survey backlog areas is misleading because many areas not designated "critical" are still a priority and are in need of modern surveys. Of the 3.2 million square nautical miles (snm) in the U.S. Exclusive Economic Zone (EEZ), NOAA's Hydrographic Surveys Division has determined that about 535,000 snm are navigationally significant, meaning that over time all of these waters should be surveyed using new, full-bottom coverage technologies. The "critical" area designation is in essence a refinement of this larger navigationally significant area and is used as a tool to assist in establishing NOAA's annual survey work plans that target the highest priority needs first. NOAA is concerned that use of the term "non-critical" might lead the reader to conclude that NOAA is surveying areas that are not important, which would be an untrue conclusion.
4. Page 1, second paragraph. The 43,000 square nautical miles identified in 1994 as critical areas in need of hydrographic surveys was a general planning estimate that was rounded to the nearest 1,000 snm. It was never intended to be used for detailed planning but to provide senior officials and Congress a general estimate of the magnitude of the national problem of hydrographic surveying inadequacy. The study was accepted by NOAA and Congress as a reasonable estimate of the highest priority survey areas in the U.S. EEZ.
5. Section II of the report states that NOAA does not always use appropriated "Address Survey Backlog" funds as justified to Congress. NOAA is deeply concerned with the accusatory tone of this section and believes the statement is misleading. The history of the "Address Survey Backlog" budget line item

indicates that the primary and overriding intent of Congress was to create a line item dedicated exclusively to supporting outsourcing. The draft report notes this, but nothing in the report indicates that there is any evidence that NOAA has not met this primary responsibility. NOAA has and will continue to expend funds from this line item exclusively to support outsourcing.

NOAA acknowledges that Congress also intended NOAA to target its outsourcing efforts to survey priority backlog requirements, especially areas designated as critical. But it is not at all clear that Congress intended to remove NOAA's discretion to consider program efficiencies, new priorities, emergency requirements, and other factors. NOAA has briefed Members of Congress on the backlog on many occasions since the mid-1990s. NOAA believes interested members are aware that the backlog of priority survey requirements includes areas both inside and outside the identified critical areas. NOAA also believes that Members of Congress are confident that NOAA is working with its contract partners and the maritime community to continually refine and prioritize survey areas while also taking into account practical considerations and overall program efficiency.

NOAA acknowledges that some areas outside of the original 43,000 square nautical miles it designated as most critical have been surveyed, but all of these areas have been within the 535,000 square nautical miles of navigationally significant waters. NOAA also acknowledges that adjustments and refinements have been made to the original 43,000 square nautical miles. As the draft IG report states on page 13, "However, planning is, by nature, an evolving process that must be based on reasonable assumptions that allow for adjustments in response to changing conditions." NOAA fully agrees. Using this approach, NOAA has made adjustments to its survey plan in response to changing conditions.

C. Specific Comments

Page 8, last section. OCS concurs that "Address Survey Backlog" funds can be put to better use, but only marginally so. (Less than \$500,000 was expended over a two-year period on contractor survey work that did not meet the criteria for critical survey areas.) The determination of the degree of criticality of an area is a discretionary function of the program manager and critical to the efficient operation and timely response to rapidly changing navigational requirements. The program manager must be free to utilize contractor assets and government assets in a fiscally responsible manner to best address the evolving critical navigational needs of the nation.

**D. NOAA Response to OIG Recommendations**

**Recommendation 1.** *The Under Secretary for Oceans and Atmosphere should require NOAA to implement written policies and procedures that, at a minimum, do the following:*

*1. Fully and accurately disclose the nature, extent of, and rationale for all modifications made to the original 1994 critical survey backlog, in the Office of Coast Survey's National Survey Plan and in all future budget requests and performance reports.*

**Office of Coast Survey Response.** OCS concurs. However, the information needed to document all the changes made to the 1994 baseline is not available.

**Alternative Corrective Action.** OCS is in the process of developing the 2003 version of the NSP and will document the changes to the 2000 baseline and institute a system for documenting all future changes to the 2003 baseline.

**Recommendation 2.** *The Under Secretary for Oceans and Atmosphere should require NOAA to implement written policies and procedures that, at a minimum, do the following:*

*2. Establish and maintain a stable baseline for the critical survey backlog, supported by nautical charts that delineate specific survey locations. Ensure accountability over the composition of the baseline to:*

*a. allow only those modifications that reflect reductions based on completed surveys or properly justified and approved removal of areas no longer deemed critical; and*

*b. require preservation and protection of supporting nautical charts and related documents that identify the specific survey details and locations for each critical area.*

**Office of Coast Survey Response.** OCS concurs with establishing a stable baseline with the understanding those individual areas will have a variability of approximately 5 percent to accommodate the imprecision of the survey area estimation process.

**Proposed Corrective Action.** A new stable baseline for the critical survey backlog is currently being developed in a state-of-the-art Geographic Information System in much more detail than previous versions. The delineation of specific survey locations will be maintained on modern digital nautical charts, which will be backed up to ensure data redundancy.

**Recommendation 3.** *The Under Secretary for Oceans and Atmosphere should ensure that NOAA develops written policies and procedures that require it to use "Address Survey Backlog" funds for their intended purpose. This could be accomplished by accounting for and allocating the critical and noncritical work between the two separate*

*appropriations. This would strengthen the link between NOAA resources and performance.*

**Office of Coast Survey Response.** OCS concurs that written policies and procedures would better track the use of "Address Survey Backlog" funds. However, based on NOAA's interpretation of the intended purpose of "Address Survey Backlog" funds, OCS believes it has expended those funds for their intended purpose of outsourcing.

**Proposed Corrective Action.** OCS will develop written policies and procedures to strengthen the link between NOAA resources and performance.

**Recommendation 4.** *The Under Secretary for Oceans and Atmospheres should take the necessary actions to strengthen NOAA's management of its hydrographic surveys program by implementing policies and procedures that require the Hydrographic Surveys Division to track its full cost, including the critical and noncritical components, and periodically report this information to the appropriate NOAA officials.*

**Office of Coast Survey Response.** OCS concurs regarding funding under the control of OCS. However, the major costs of NOAA's hydrographic surveying program using in-house assets are associated with ship operations controlled by NMAO. Detailed cost accounting of those operations cannot be mandated by OCS.

**Proposed Corrective Action.** OCS will continue to track the full costs of the Hydrographic Surveys Division.

**Recommendation 5.** *To strengthen internal controls over contractor performance and expedite backlog reduction while ensuring quality deliverables, the Under Secretary for Oceans and Atmosphere should take the necessary actions to better monitor task order due dates for deliverables, and include in these contract documents formal interim due dates, or milestones.*

**Office of Coast Survey Response.** OCS concurs.

**Proposed Corrective Action.** On future work orders, OCS will negotiate mutually agreeable interim and final delivery dates. OCS will increase oversight of the construction of the deliverables to include inspections of data sets at more frequent intervals, and will emphasize timely contract performance in contract administration, including invoice payments.

**Recommendation 6.** *The Under Secretary for Oceans and Atmosphere should take the necessary actions to require NOAA to implement a detailed and documented work plan that includes costs and schedule goals and thereby expedites reduction of the critical survey backlog.*

**Office of Coast Survey Response.** OCS does not concur. OCS continually makes projections on the estimated time necessary to complete the critical survey backlog, but does so in a very general way making numerous assumptions. These assumptions deal with the following variables: the number of in-house survey vessels, appropriations for contract services, and production rate variability by geographical area and time of the year. Changes in the assumptions dealing with any of these variables immediately make any detailed work plan immediately obsolete. It is much more reasonable to develop a general plan, as NOAA has, and make small modifications, as necessary. The OIG, in the last sentence on page 13, states that “. . . planning, is by nature, an evolving process that must be based on reasonable assumptions that allow for adjustments in response to changing conditions.” Such a statement contradicts the recommendation.

**Alternative Corrective Action.** OCS will continue to develop general work plans based on current appropriations and technology.

# Critical Survey Backlog Analysis: 1994 - 2000

28-Jun-02

## East Coast & Puerto Rico/Virgin Islands

	1994 Critical Area - SNM	SNM Completed 1994-2000	SNM To be done Per NSP
Penobscot to French Bay, ME	730	22	279
Casco Bay, ME		23	6
Portsmouth Harbor, NH		27	
Boston Bay and Appr., MA	140		108
Offshore MA Coast, MA	400		
Buzzards Bay & Nan/Vin, MA	810	163	186
Block & Rhode Is. Sounds, RI	910	60	180
Narragansett Bay, RI	85	72	208
New Haven Harbor, CT	25		2
W. Long Island Sound, NY	230	130	927
Hudson River, NY	20	3	2
East River, NY	10	5	6
NY Harbor Vicinity & Appr.	100	47	214
NJ Offshore		56	624
Delaware River & Bay, DE	200	38	255
Philadelphia Harbor, PA	5		
Marcus Hook area, PA	5		
Paulsboro area, NJ	5		
Northern Chesapeake Bay, MD	470	86	36
Baltimore Harbor & Appr., MD	30		
Greater Hampton Roads, VA	15		
Southern Chesapeake Bay, VA	340	110	996
DelMarVaNC (Offshore)	180	61	1455
NC Offshore		573	627
Charleston Harbor, SC	20		
SC Offshore		297	
Savannah Harbor, GA	5		
GA Offshore		617	
Jacksonville, FL		204	
Palm Beach, FL	15		
Port Everglades & Appr., FL	15	5	4
Biscayne Bay, FL		8	100
Miami Harbor, FL	25		
San Juan Harbor, PR	5		
Ponce, PR	15		
South coast of Puerto Rico, PR			62
St. Thomas Harbor, VI	15		
<b>Total</b>	<b>4825</b>	<b>2607</b>	<b>6277</b>

### Gulf of Mexico

	1994 Critical Area - SNM	SNM Completed 1994-2000	SNM To be done Per NSP
Dry Tortugas			470
Tampa Bay & Appr., FL	340	136	
Panama City & Appr., FL	175		57
Pensacola & Perdido Bay, FL		42	
Mobile Bay & Appr., AL	60		
Pascagula Harbor & Appr., MS	180		71
Chandeleur & Brent Sd., LA	810		1387
Baton Rouge to Passes, LA	80		
Appr. To Miss. River, LA	50		301
Atchafalaya River, LA	25		
Appr. To Atchafalaya River, LA	150		567
Calcasieu Pass & Appr., LA	505		831
Louisiana Coast, LA	7600		1627
Approaches to Cameron			48
Cameron to Sabine, LA/TX	900	699	1421
Appr. To Galveston Bay, TX	1400	777	2106
Galveston Hbr/Bay to Houston	175	142	212
Freeport and Appr., TX	600		348
Appr. To Matagorda Bay, TX	150		613
Corpus Christi & Appr., TX		60	
SW Texas Coast, TX	1500		927
Total	14700	1856	10986

### Great Lakes

	1994 Critical Area - SNM	SNM Completed 1994-2000	SNM To be done Per NSP
Bayfield Harbor, WI	1		1
LaPoint Harbor, WI	2		2
Port of Chicago, IL	55		58
Appr. To Port Huron, MI	25		1
St. Clair River, MI	5		5
Lake St. Clair (U.S. side), MI	70		131
Detroit River, MI	10		23
Detroit River Entrance, MI	100		38
Appr. To Cleveland Hbr., OH	40		8
Appr. To Ashtabula Hbr., OH	15		3
Total	323		270

<b>West Coast</b>			
	1994 Critical	SNM Completed	SNM To be done
	Area - SNM	1994-2000	Per NSP
Los Angeles/Long Beach, CA	80	13	9
Channel Islands, CA	450		
El Segundo		3	
Goleta		8	
Gaviota		8	
Port San Luis			6
Morro Bay		42	
San Francisco Bay Entr., CA	160		156
So. San Francisco Bay, CA	70	24	84
No. San Francisco Bay, CA	30	6	35
Humboldt Bay, CA			4
Pt. Reyes Station, CA		2	
Columbia River and Entr., OR	170		150
Port of Portland, OR	5		
Juan de Fuca (U.S. side), WA	105	141	83
San Juan Island Area, WA	65		
Admiralty Inlet, WA	50	107	347
Central Puget Sound, WA	50	15	188
South Puget Sound, WA		19	
<b>Total</b>	<b>1235</b>	<b>388</b>	<b>1062</b>

<b>Hawaii</b>			
	1994 Critical	SNM Completed	SNM To be done
	Area - SNM	1994-2000	Per NSP
Hilo Harbor, HI	5		5
Kahului Harbor, HI	10		10
Naviliwili, HI	5		5
South shore Oahu, HI	45		46
<b>Total</b>	<b>65</b>		<b>66</b>

<b>Alaska - Southeast</b>			
	1994 Critical	SNM Completed	SNM To be done
	Area - SNM	1994-2000	Per NSP
Tongass Narrows, AK	15	16	
Rudyard Bay, AK	10		8
Prince of Wales Is., AK	1170		352
No. Clarence Strait, AK	110	129	161
Wrangell Narrows, AK	10		9
Frederick Sound, AK	90	234	
Chatham Strait, AK	115		948
Kootz to White Bay, AK	55		

Sitka Sound, AK	220		269
Stephens Passage, AK	505	534	
Lynn Canal, AK	65	457	
Sumner Strait, AK		19	
Icy Passage, AK		20	
Icy Bay, AK		51	82
Keku Strait, AK			42
Dawes Glacier, AK			9
Total	2365	1460	1880

### Alaska - Central

	1994 Critical Area - SNM	SNM Completed 1994-2000	SNM To be done Per NSP
Yakutat, AK		16	
SE Appr. to Prince William S.			565
Orca Bay to St. Elias, AK	230		52
Western Prince William S., AK	1555	1579	352
Patton Bay, AK	30		25
Seward, AK		166	330
Valdez Harbor, AK	20		58
Fire Island/Upper Cook Inlet	40	373	84
Total	1875	2134	1466

### Alaska - Western

	1994 Critical Area - SNM	SNM Completed 1994-2000	SNM To be done Per NSP
Kodiak		19	
Larsen Bay		59	
Shelikof Strait		281	
Southern Alaska Penin., AK	10130	979	10116
Unalaska Bay, AK	30		48
Kiska Harbor and Island, AK	200		
Shemya Island, AK	20		
Attu Island, AK	460		
Ugashik Bay, AK	120		
Kuskokwim Bay, AK	4560		
Mouth of the Yukon River, AK	1575		
St. Paul Island, AK			269
St. George Island, AK			199
Nome, AK	20		36
Kivalina (Red Dog Mine), AK			9
Kotzebue, AK			93
Port Clarence, AK	360		
Point Barrow, AK	30		

Total	17505	1338	10770
<b>Grand Totals by Region</b>			
	1994 Critical Area - SNM	SNM Completed 1994-2000	SNM To be done Per NSP
East Coast & PRVI	4825	2607	6277
Gulf of Mexico	14700	1856	10986
Great Lakes	323		270
West Coast	1235	388	1062
Hawaii	65		66
Alaska - Southeast	2365	1460	1880
Alaska - Central	1875	2134	1466
Alaska - Western	17505	1338	10770
Total	42893	9783	32777

JBM - 6/28/02